



How Does Dementia Differ From Normal Aging?

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In previous years, a loss of mental capacity was mistakenly believed by many to be a normal part of aging. This idea was so widely accepted that the word *senility*, which actually means *old* age, came to refer also to a loss of mental abilities. Now we know that many mental functions do not become dulled with aging. Some abilities remain the same or even improve through the seventh decade of life. Dementia, therefore, is a disease and not a normal development.

We know that the human brain undergoes predictable changes as it ages. Brain weight, for example, typically decreases by about 10 percent between the early adult years and old age. The fluid-filled spaces within the brain increase in size and the folds of the brain widen with the passage of the years. Of the brain's 10 to 100 billion neurons, 50,000 to 100,000 are lost each day. Blood flow and metabolism are reduced, and levels of some neurotransmitters decline. In addition, starting from around age 20, cell debris and protein deposits called amyloid plaques accumulate even in the normally aging brain. These plaques accumulate much more densely in the brain of a person with Alzheimer's disease (AD) than in the normal brain. It is now known that synaptic remodeling and the growth of new brain cells continue even into late adulthood, but the significance of this in terms of mental functioning is not clear.

Symptoms of normal aging vs. Alzheimer's disease

Normal aging

- slow accumulation of amyloid plaques (cell debris and protein deposits) in brain
- development of mild memory problems (for example, reduced "working memory")
- slowing of information processing and greater difficulty with multitasking
- retention of social skills
- retention of ability for new learning and for recall of previously learned information
- persistence of basic personality traits
- occasional trouble finding the right word or recalling a name may be present without indicating a disease

Alzheimer's disease

- denser accumulation of amyloid plaques
- memory and cognitive changes interfere with normal social and/or occupational functioning
- behavioral symptoms such as depression, agitation, inappropriate behavior may develop
- increasing loss of ability to learn new information, to recall recent events, and

- eventually to recognize familiar people during later stages of the illness
- accentuation of personality traits; onset or worsening of anxiety; impulsivity, suspiciousness, paranoia, agitation, or aggression may develop
- increasing impairment of language, both understanding and expression

The cognitive changes that accompany normal aging include slowing of information processing, decreases in working memory and minor changes in problem-solving ability. The normal elderly person retains well-learned social skills and most abilities that were previously acquired. The acquisition and manipulation of new information is affected more than the ability to use what is already known in familiar ways. Faced with complicated new situations, even the normal elderly person can seem somewhat cautious and inflexible. Cognitive difficulties can be accentuated by the effects of medications that are sedating or anticholinergic; by medical illnesses that cause pain or sap energy; and by losses that sometimes accompany aging such as mourning over family or friends that have died; regret about what could have, should have or might have been; reduced activity and sense of self-esteem, and increasing social isolation.

A normal elderly person may complain of memory problems, but these problems are not so severe or pervasive as the disturbances of memory seen in people with dementia people. Mild memory problems are common among the elderly and often do not signal dementia or even a serious problem. Normal memory problems of aging typically involve trouble recalling the right word or name of an acquaintance that has not been seen recently. With this type of problem, a cue or reminder is usually helpful.

By contrast, *dementia* is a more severe syndrome of decline in mental functions that previously worked more effectively. By definition, dementia requires an impairment of memory. In addition, correct use of the diagnostic term “dementia” requires that there be a disturbance of at least one other intellectual function such as the ability to use language effectively, the ability to recognize familiar people and objects, the ability to carry out familiar behaviors, or the ability to use “executive functions” (such as planning and problem-solving skills). For a person to be diagnosed with dementia, the impairment of intellectual functioning must not be better explained by a different physical or mental disorder that is present.

The greatest risk factor for developing dementia disease is increasing age. By age 85, more than one-third of adults show some signs of Alzheimer’s disease. Because some dementias are reversible and others can be helped in various ways by appropriate treatment, it is important to determine which type of dementia is present. Those individuals who are incorrectly diagnosed as having a progressive dementia are at greater risk for institutionalization, and those who are institutionalized for longer than six months have little chance of being discharged unless it is for transfer to a hospital for the care of an acute illness. Misdiagnosis, for example mistakenly diagnosing dementia in an individual who shows mental problems that are actually due to a depression, can mean an increased risk of long-term, inappropriate confinement in a nursing home.

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